WHAT IS CLAIMED IS:

1. A 3D stereoscopic projection system that utilizes a digital micro-mirror display to optically switch between left and right eye perspective images in a flicker free fashion and for which said switching between left and right eye perspective images is independent of the rate at which image data is received by said 3D stereoscopic projection system.

2. The system of claim 1 for which the said switching between said left and said right eye perspective images may or may not be independent of any clock or index signal internal to said 3D stereoscopic projection system.

3. The system of claim 1 for which said switching between said left and said right eye perspective images is synchronized to a color wheel index signal for convenience.

4. The system of claim 1 for which a spatio-temporal stereoscopic image multiplexing method is used to decouple the said switching between left and right eye perspective images from the input image data rate.

5. The system of claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists of a means and apparatus to convert incoming stereoscopic image data formats into a column multiplexed format and which consists of a means and apparatus to optically encode a sequence of left-right images for transmission to an observer.

6. The system of claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists, in part, of a 3D Data Formatter that (a) converts stereoscopic image data encoded in one of several formats including field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format into the column interleaved stereoscopic format with said column interleaved format being a spatial method for encoding a stereoscopic image into a single image data stream, (b) demultiplexes

stereoscopic image data encoded in one of several formats including field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format, into two separate left and right image data channels for the purpose of performing image interpolation on each left or right image data separately, and (c) converts the image data frame rate from any standard frame rate on the input, to a single pre-determined image data frame rate on the output.

7. The system of claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists, in part, of a 3D Display formatter that converts spatially multiplexed stereoscopic image data in the column-alternate format into a time-sequential format for transmission to an observer by the DMD Display.

8. The system of claim 1 for which a column blanking method and apparatus is used to convert said spatially multiplexed stereoscopic image data in the column-alternate format into the said time-sequential format for transmission to an observer by the DMD Display.

9. The system of claim 1 for which a column doubling method and apparatus is used to convert said spatially multiplexed stereoscopic image data in the column-alternate format into the said time-sequential format for transmission to an observer by the DMD Display.

10. The system of claim 1 for which the 3D stereoscopic projection system is constructed using a single DMD chip and three-color color-wheel.

11. The system of claim 1 for which the 3D stereoscopic projection system is constructed using a single DMD chip and a four-color color-wheel.

12. The system of claim 1 for which the 3D stereoscopic projection system is constructed using a two DMD chip display and a two-color color-wheel.

13. The system of claim 1 for which the 3D stereoscopic projection system is constructed using a two DMD chip display and a three-color color-wheel.

14. The system of claim 1 for which the 3D stereoscopic projection system is constructed using a three DMD chip display and no color-wheel.

15. The system of claim 1 for which a pair of active shutter glasses are used to decode left and right image pairs that are optically encoded in a time-sequential fashion.

16. The system of claim 1 for which an internal optical filter A reflects left handed circularly polarized light in the infrared range and which transmits left and right handed circularly polarized in the visible region and right handed circularly polarized light in the infrared region and for which an internal optical filter B reflects right handed circularly polarized light in the both the visible and infrared ranges and transmits left handed circularly polarized light in the both the visible and infrared ranges resulting in a combination filter that transmits only left handed circularly polarized light in the visible range.

17. The system of claim 1 for which in internal ¼-wave retardation plate is used to convert left handed circularly polarized light in the visible region to linearly polarized light in the visible region, and for which an internal switchable liquid crystal rotator is used to switch the output polarization state of the projector from a linearly polarized state P1, to an orthogonal linearly polarization state P2 and for which an internal 3d image index signal is used to switch between said polarization states with said 3D image index being independent of the DMD display frame rate and independent of the input image data frame rate, and for which passive linearly polarized glasses are used to decode the optically encoded left-right image sequence.

18. The system of claim 1 for which a switchable ½-wave retardation plate is used to switch the output polarization state of the projector from left handed circularly polarized light to right handed circularly polarized light and for which an internal D image index signal is used to switch between the to circular polarization states with said 3D image index being independent of the DMD display frame rate and independent of the input image data frame rate, and for which passive circularly polarized glasses are used to decode the optically encoded left-right image sequence.

19. The system of claim 1 for which an external linear polarizing plate is used to polarize the projector output to a P1 state and for which a switchable liquid crystal rotator is used to switch the projector output polarization state between the said P1 state and an orthogonal linearly polarized state P2, and for which an internal 3d image index signal is used to switch between said polarization states with said 3D image index being independent of the DMD display frame rate and independent of the input image data frame rate, and for which passive linearly polarized glasses are used to decode the optically encoded left-right image sequence.

20. The system of claim 1 for which an external passive ¼-wave plate is used to convert linearly polarized light output from the projector system to circularly polarized light and for which passive circularly polarized glasses are used to decode the optically encoded left-right image sequence.

21. A projector for displaying a stereoscopic image, said projector using one or more digital micromirror devices positioned into a plurality of columns and rows, said projector including a light source, an optical system, a video processing system and a data system for driving said micromirror devices, said data subsystem providing separate data to a plurality of column pairs of said micromirrors wherein said projector includes a stereoscopic control circuit comprising:

a first state of said control circuit for inputting a first eye view of said stereoscopic image and causing said micromirrors of a first column of each column pair to be in various on and off states during said first eye view of said stereoscopic image and for causing all of said micromirrors of a second column of each column pair to be in an off state during said first eye view of said stereoscopic image; and

a second state of said control circuit for inputting a second eye view of said stereoscopic image and causing said micromirrors of said second column of each column pair to be in various on and off states during said second eye view of said stereoscopic image and for causing all of said micromirrors of said first column of each column pair to be in an off state during said second eye view of said stereoscopic image.

22. A projector for displaying an image, said projector using one or more digital micromirror devices positioned into a plurality of columns and rows, said projector including a light source, an optical system, a video processing system and a data system for driving said micromirror devices, said data subsystem providing separate data to a plurality of column pairs of said micromirrors wherein said projector includes a stereoscopic control circuit comprising:

a first state of a control circuit for inputting a first eye view of said stereoscopic image and causing each micromirror of each column pair to be in various but identical on and off states during said first eye view of said stereoscopic image; and

a second state of said control circuit for inputting a second eye view of said stereoscopic image and causing each micromirror of each column pair to be in various but identical on and off states during said second field of said stereoscopic image.